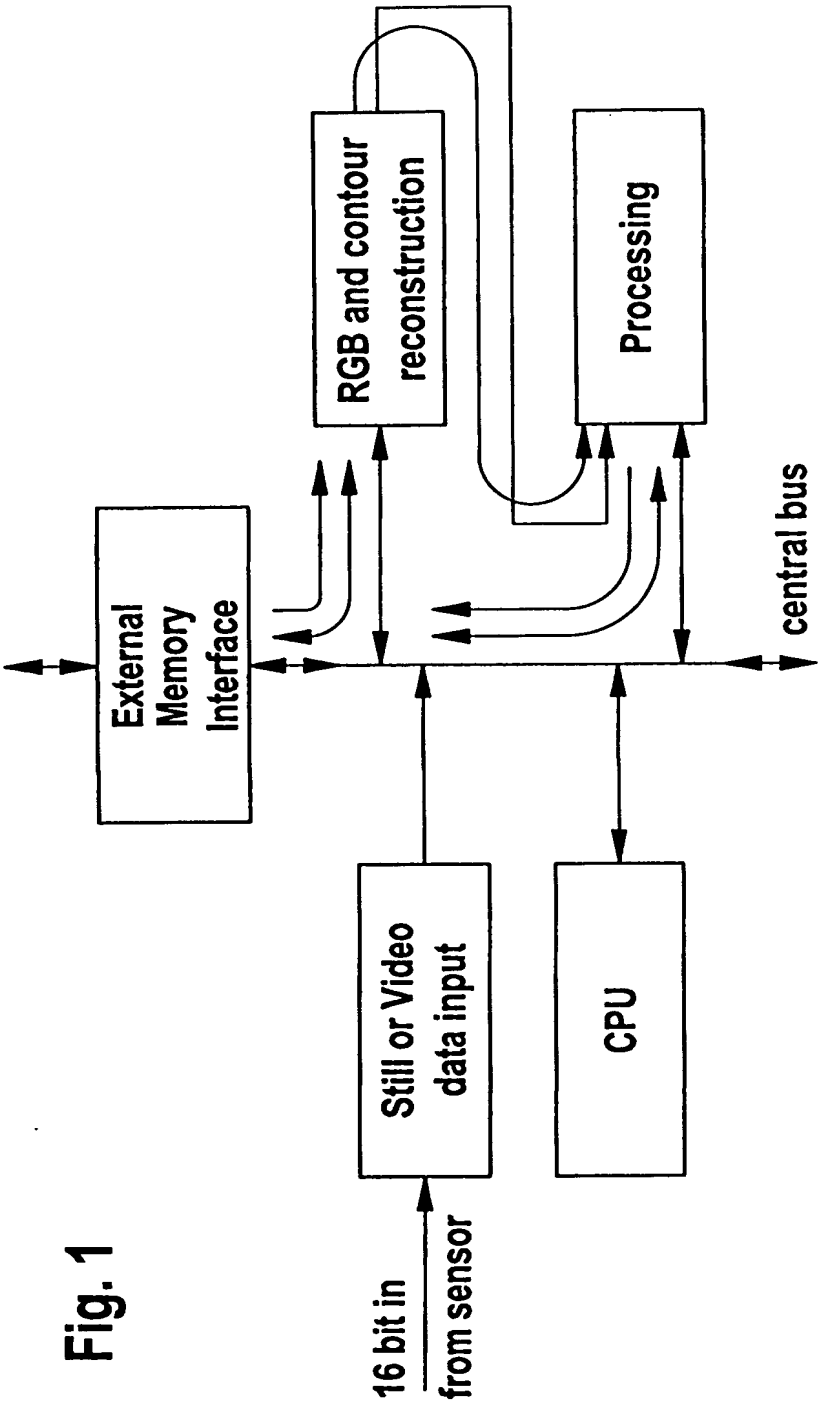

RGB and contour reconstruction
Processing
External Memory Interface
central bus
Still or Video data input
CPU
16 bit in
from sensor

Fig. 1

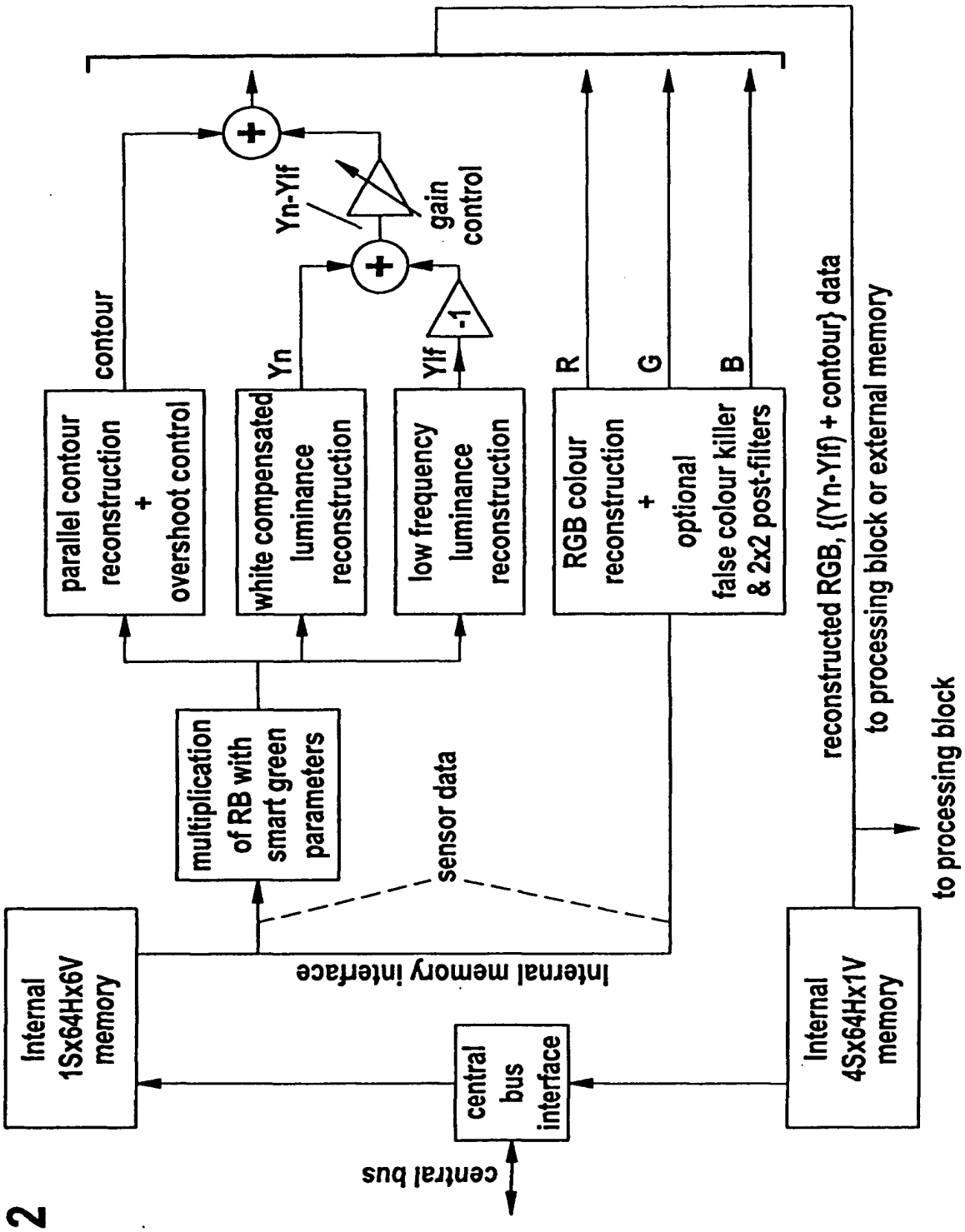

central bus
central bus interface
Internal 1Sx64Hx6V memory
Internal 4Sx64Hx1V memory
internal memory interface
sensor data
multiplication of RB with smart green parameters
parallel contour reconstruction + overshoot control
white compensated luminance reconstruction
low frequency luminance reconstruction
RGB colour reconstruction + optional false colour killer & 2x2 post-filters
contour
Yn
Ylf
R
G
B
-1
Yn-Ylf
gain control
reconstructed RGB, {(Yn-Ylf) + contour} data
to processing block or external memory
to processing block

Fig. 2

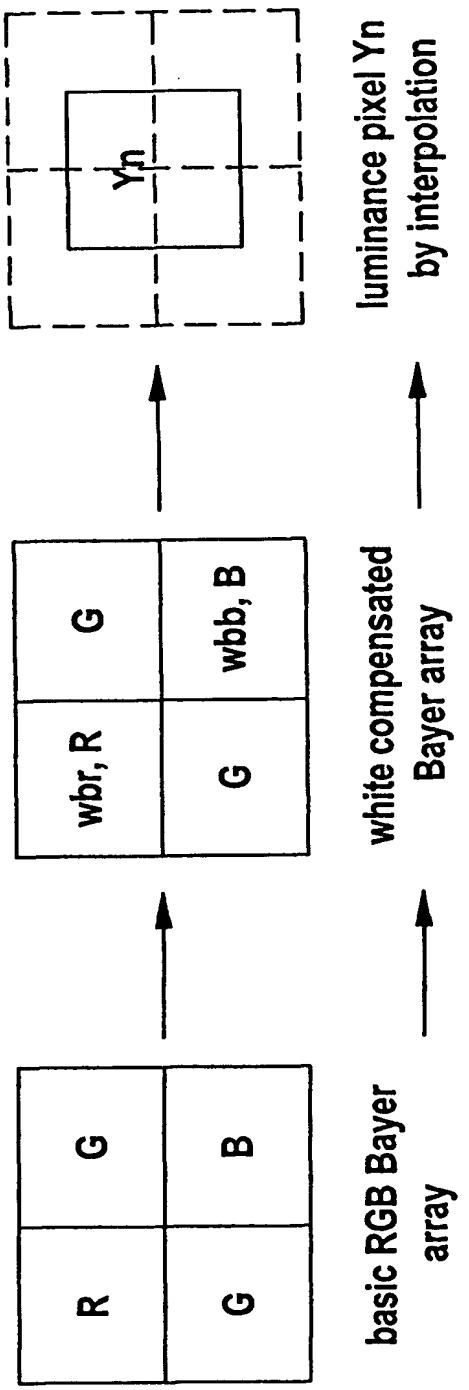

Yn
luminance pixel Yn by interpolation
wbr, R
G
G
wbb, B
white compensated Bayer array
R
G
G
B
basic RGB Bayer array

Fig. 3

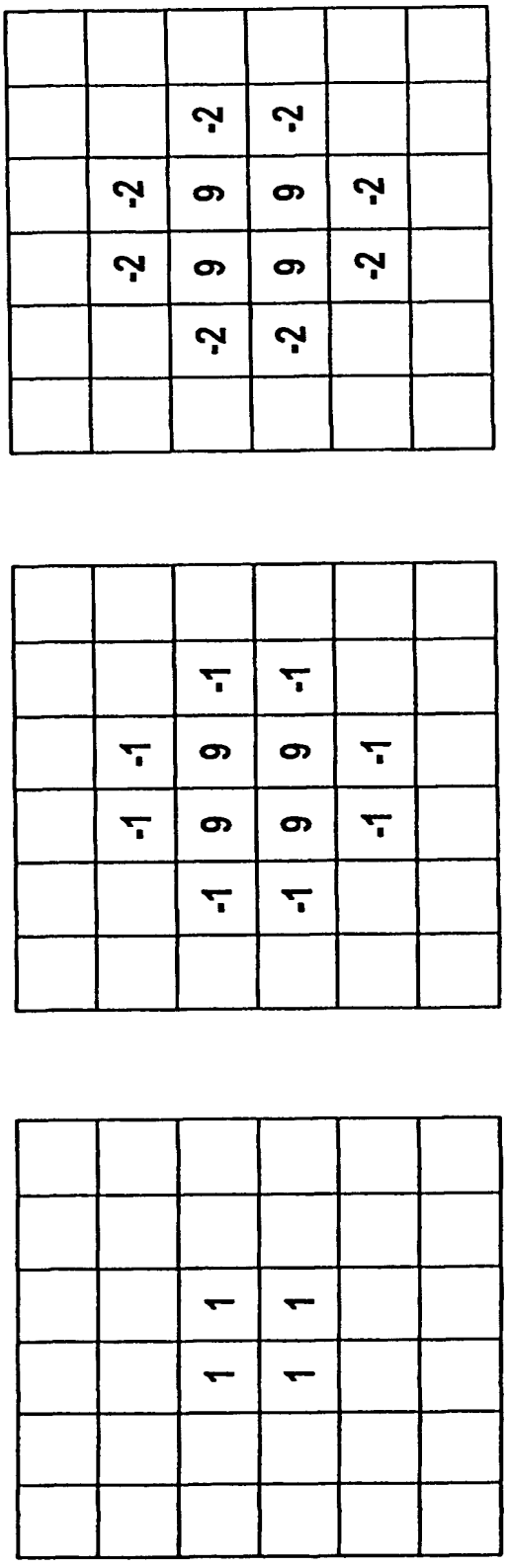

-2 -2
-2 9 9 -2
-2 9 9 -2
-2 -2
-1 -1
-1 9 9 -1
-1 9 9 -1
-1 -1
1 1
1 1

Fig. 4

Fig. 5

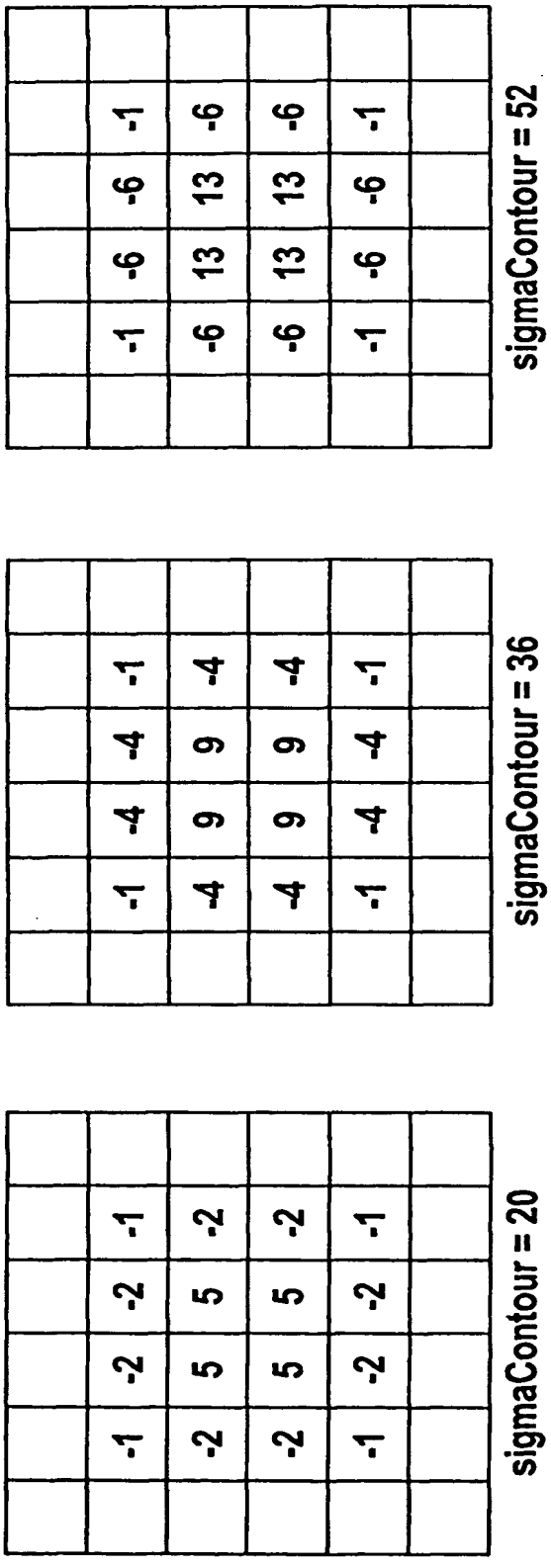
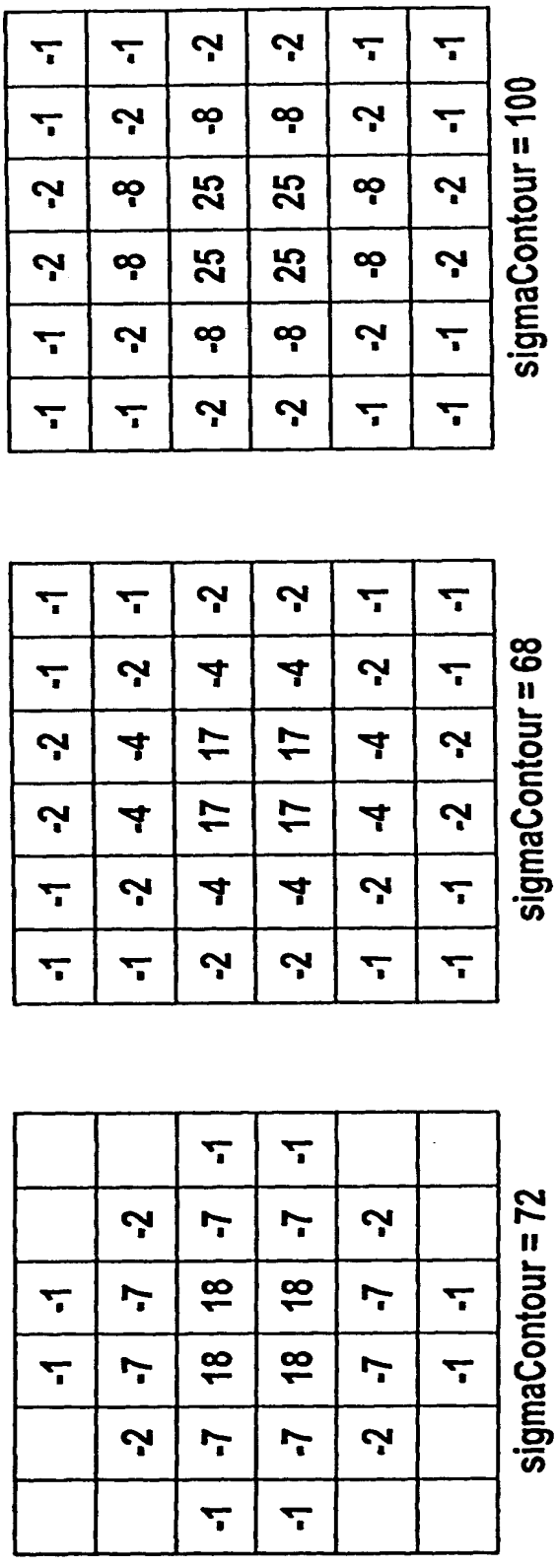

-1 -6 -6 -1
-6 13 13 -6
-6 13 13 -6
-1 -6 -6 -1
sigmaContour = 52
-1 -4 -4 -1
-4 9 9 -4
-4 9 9 -4
-1 -4 -4 -1
sigmaContour = 36
-1 -2 -2 -1
-2 5 5 -2
-2 5 5 -2
-1 -2 -2 -1
sigmaContour = 20

Fig. 6


-1 -1 -1 -1 -1 -1
-1 -2 -8 -8 -2 -1
-2 -8 25 25 -8 -2
-2 -8 25 25 -8 -2
-1 -2 -8 -8 -2 -1
-1 -1 -2 -2 -1 -1
sigmaContour = 100
-1 -1 -1 -1 -1 -1
-1 -2 -4 -4 -2 -1
-2 -4 17 17 -4 -2
-2 -4 17 17 -4 -2
-1 -2 -4 -4 -2 -1
-1 -1 -2 -2 -1 -1
sigmaContour = 68
-1 -1 -1
-2 -7 -7 -2
-1 -7 18 18 -7 -1
-1 -7 18 18 -7 -1
-2 -7 -7 -2
-1 -1
sigmaContour = 72

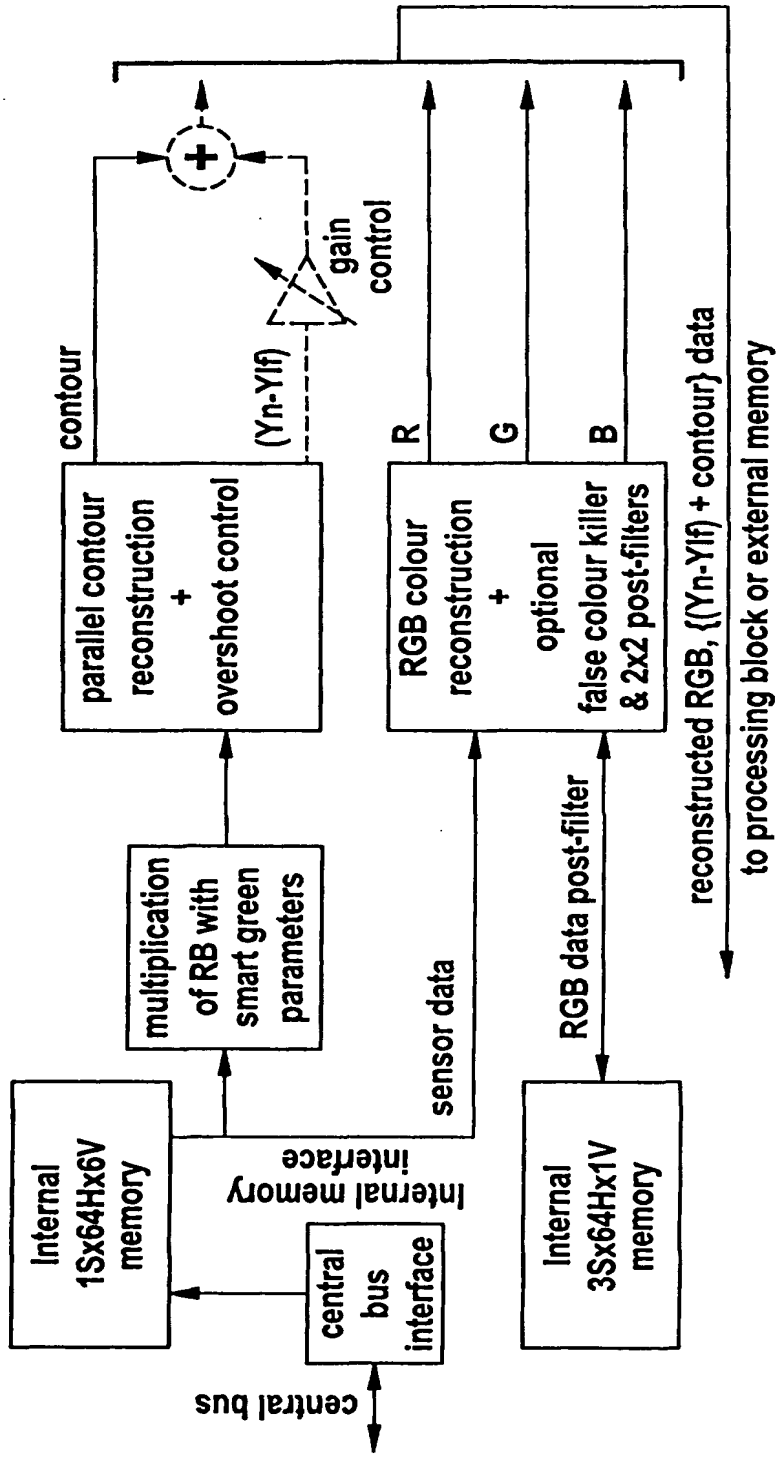

central bus
central bus interface
Internal 1Sx64Hx6V memory
Internal memory interface
multiplication of RB with smart green parameters
sensor data
parallel contour reconstruction + overshoot control
RGB colour reconstruction + optional false colour killer & 2x2 post-filters
RGB data post-filter
Internal 3Sx64Hx1V memory
contour
(Yn-Ylf)
gain control
R
G
B
reconstructed RGB, {(Yn-Ylf) + contour} data
to processing block or external memory

Fig. 7

Fig. 8

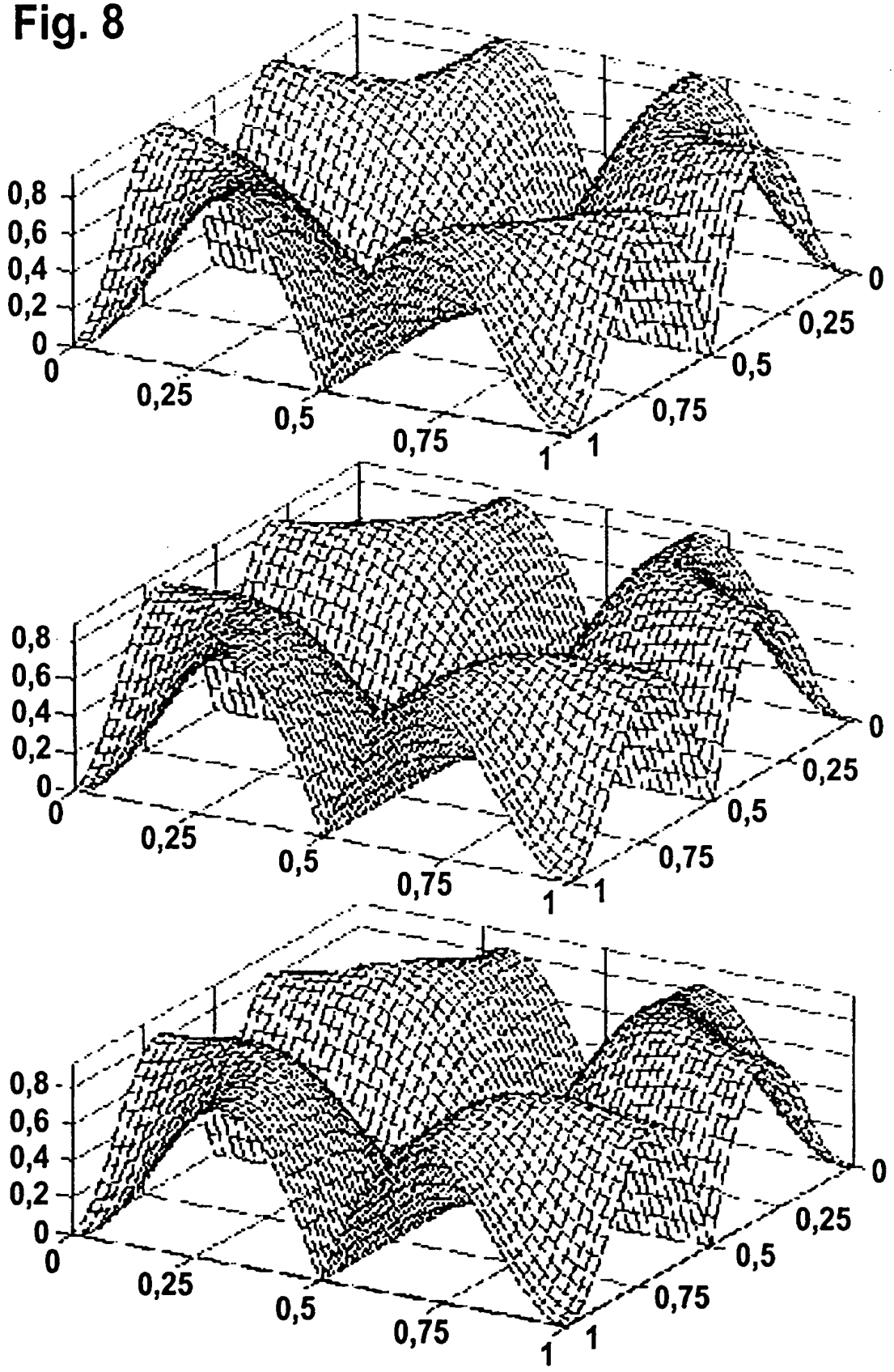

0,8
0,6
0,4
0,2
0
0
0,25
0,5
0,75
1
1
0,75
0,5
0,25
0
0,8
0,6
0,4
0,2
0
0
0,25
0,5
0,75
1
1
0,75
0,5
0,25
0
0,8
0,6
0,4
0,2
0
0
0,25
0,5
0,75
1
1
0,75
0,5
0,25
0

Fig. 9

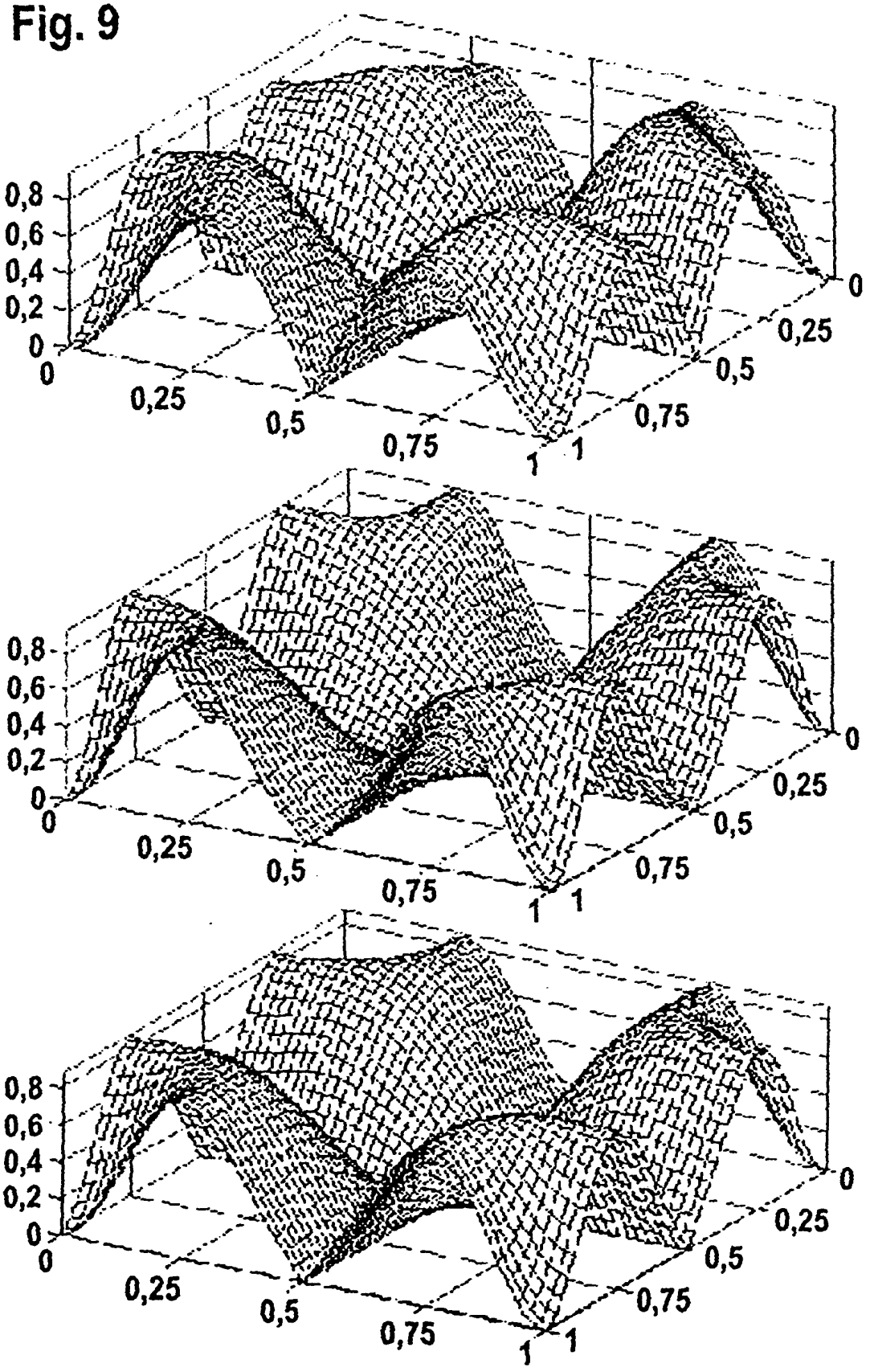

0,8
0,6
0,4
0,2
0
0
0,25
0,5
0,75
1
1
0,75
0,5
0,25
0
0,8
0,6
0,4
0,2
0
0
0,25
0,5
0,75
1
1
0,75
0,5
0,25
0
0,8
0,6
0,4
0,2
0
0
0,25
0,5
0,75
1
1
0,75
0,5
0,25
0

Fig. 10

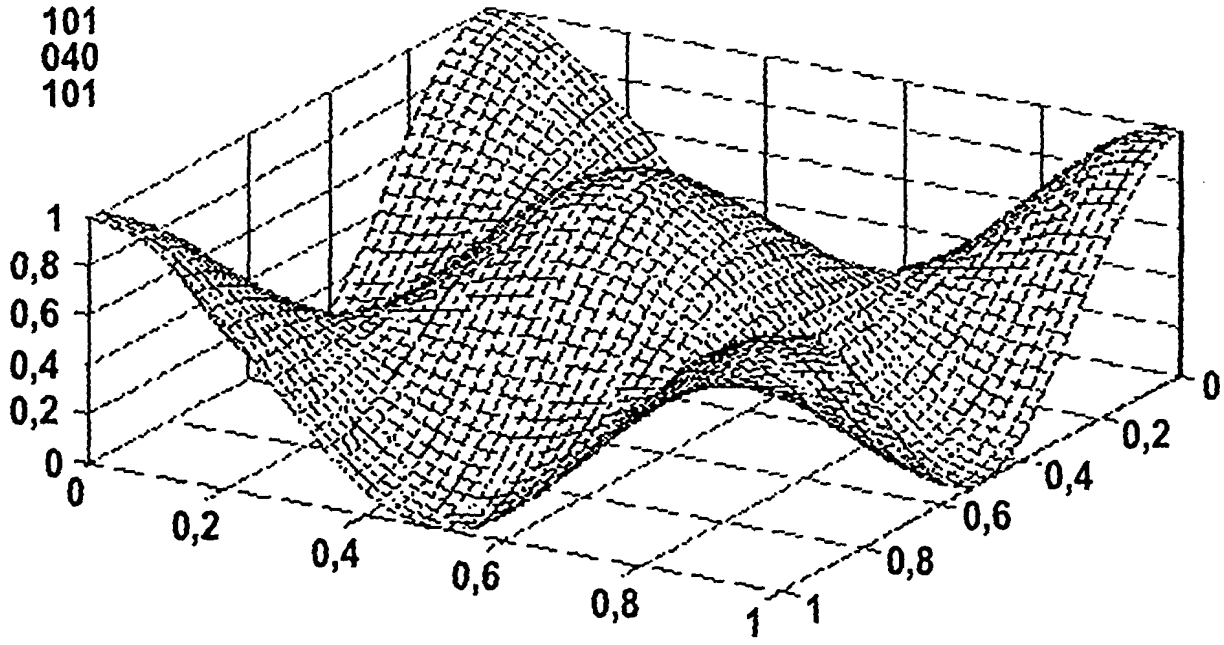
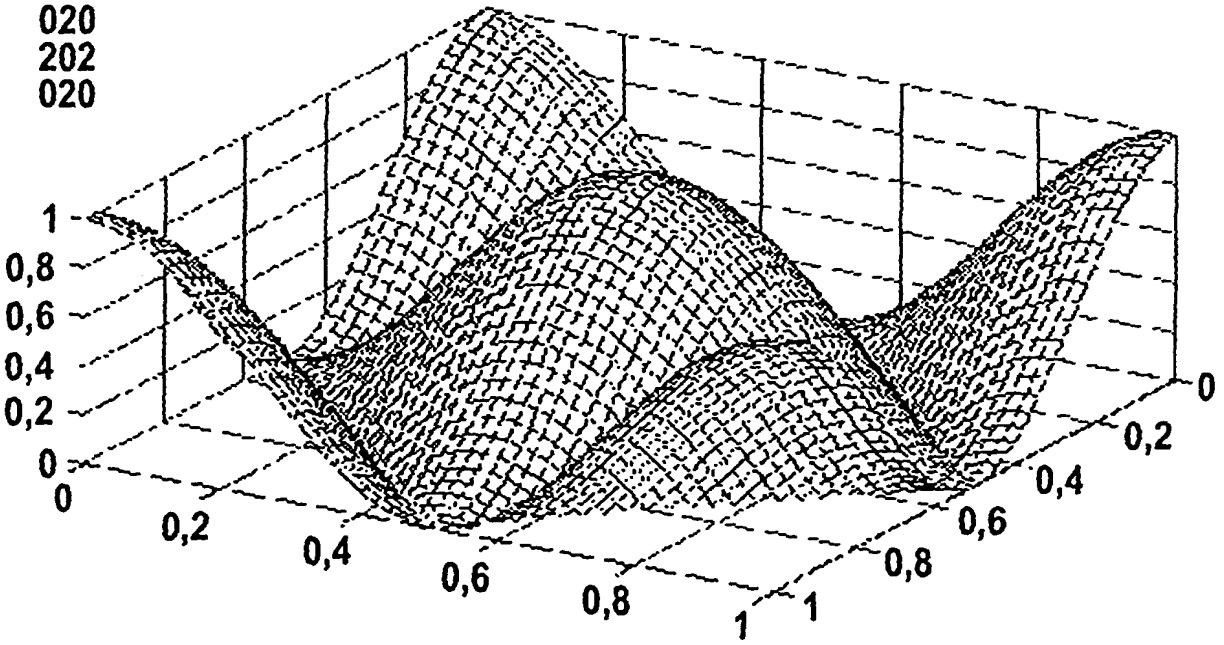

101
040
101
1
0,8
0,6
0,4
0,2
0
0
0,2
0,4
0,6
0,8
1
1
0,8
0,6
0,4
0,2
0

Fig. 11


020
202
020
1
0,8
0,6
0,4
0,2
0
0
0,2
0,4
0,6
0,8
1
1
0,8
0,6
0,4
0,2
0

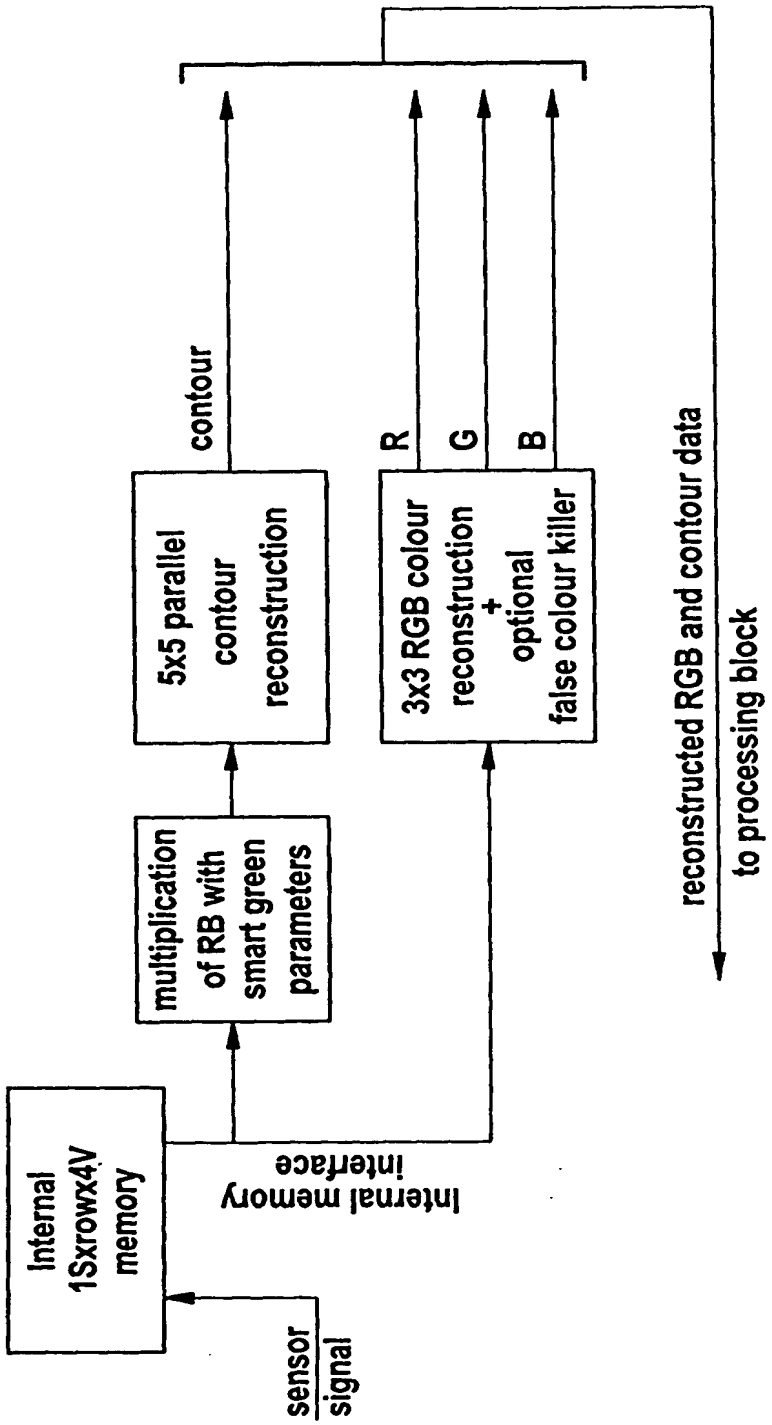

sensor signal
Internal 1Sxrowx4V memory
Internal memory interface
multiplication of RB with smart green parameters
5x5 parallel contour reconstruction
contour
3x3 RGB colour reconstruction + optional false colour killer
R
G
B
reconstructed RGB and contour data
to processing block

Fig. 12

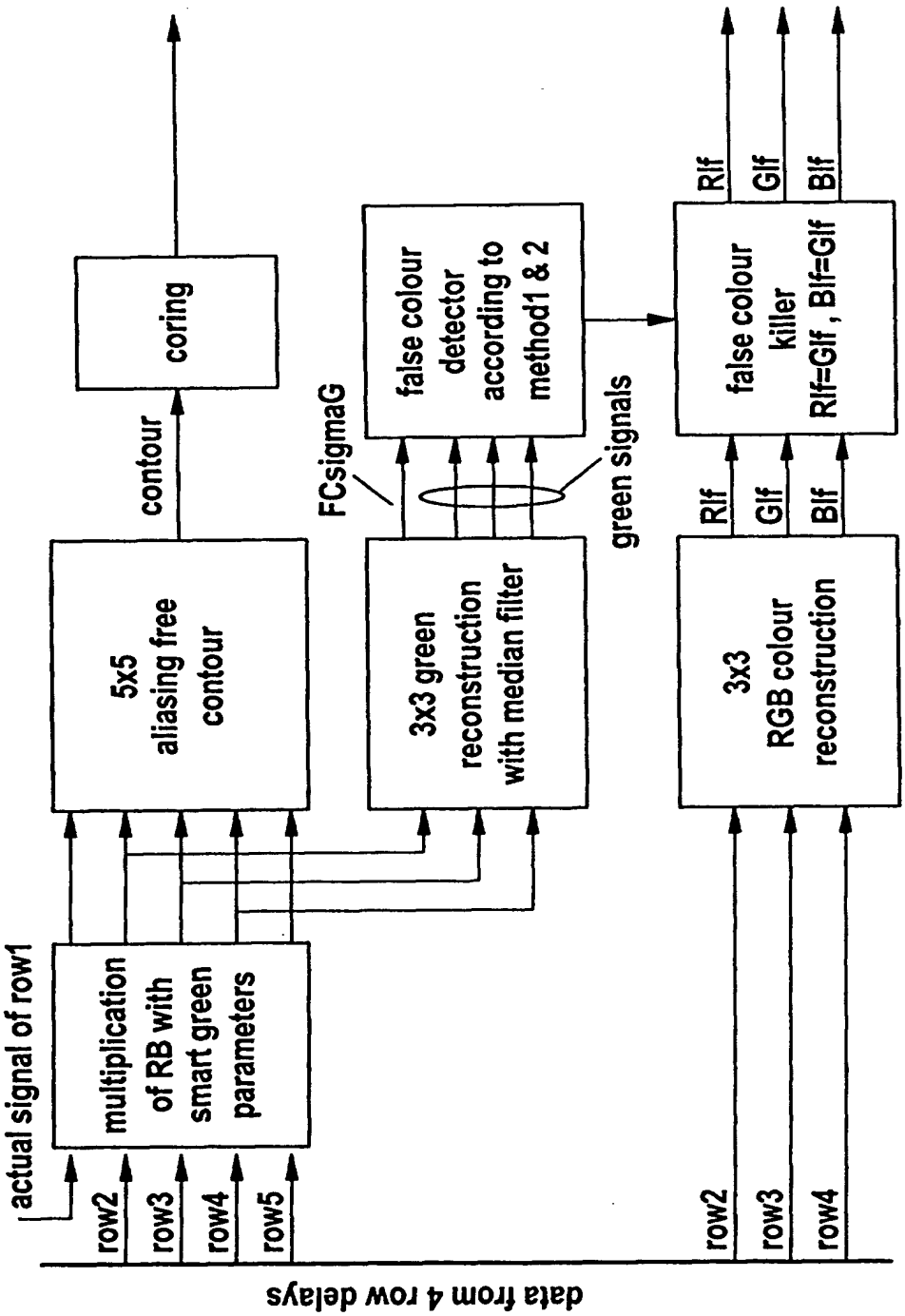
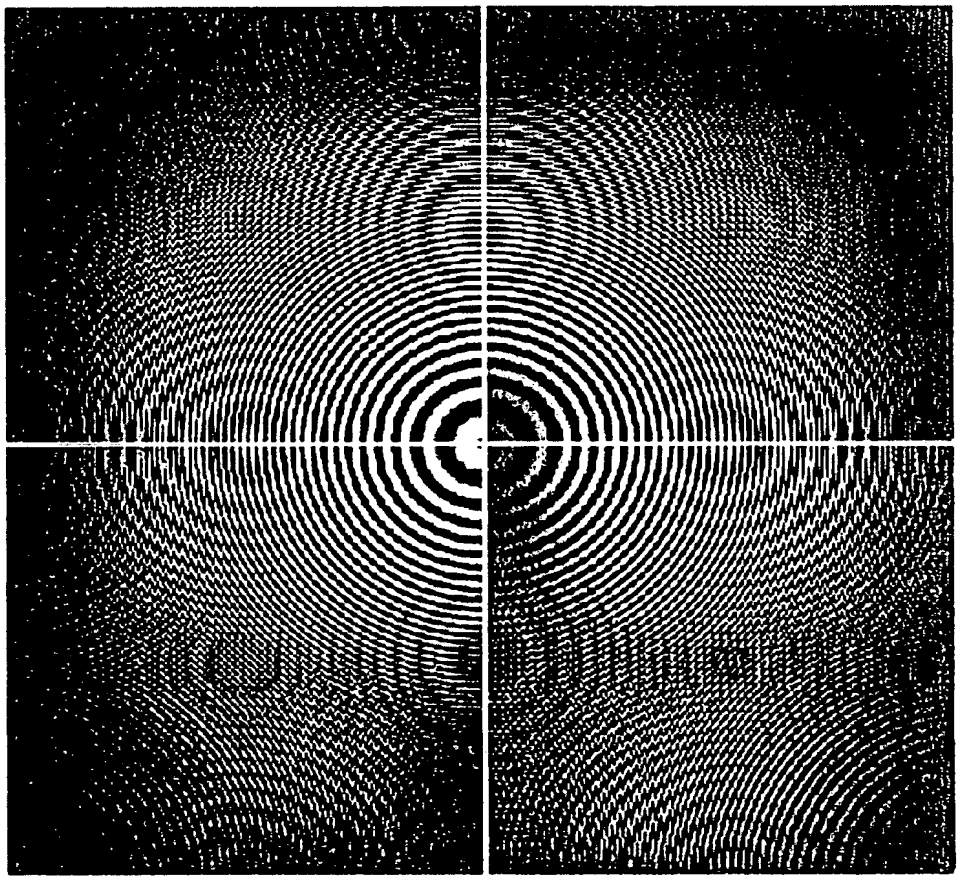

data from 4 row delays
row2
row3
row4
row5
actual signal of row1
multiplication of RB with smart green parameters
5x5 aliasing free contour
3x3 green reconstruction with median filter
3x3 RGB colour reconstruction
contour
FCsigmaG
green signals
Rlf
Glf
Blf
coring
false colour detector according to method1 & 2
false colour killer Rlf=Glf , Blf=Glf

Fig. 13

Fig. 14



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